

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): En-Hsing Chen, et al.

Title: NAND MEMORY ARRAY INCORPORATING MULTIPLE WRITE

PULSE PROGRAMMING OF INDIVIDUAL MEMORY CELLS AND

METHOD FOR OPERATION OF SAME

Application No.: 10/729,844 Filed: December 5, 2003

Examiner: Mai, Son Luu Group Art Unit: 2818

Atty. Docket No.: 023-0030 Confirmation No.: 8322

April 18, 2005

Mail Stop Amendment COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT 37 C.F.R. § 1.97(c)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the undersigned brings to the Examiner's attention in the above-identified application the patents, publications, applications or other information identified in the attached:

\boxtimes	Form(s)	PTO/	SB/08A	(5	page(s),	with	copy	of	4	refer	ence(s))).	
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Form(s) PTO/SB/08B (2 page(s), with copy of 20 reference(s)).

Listing of Pending Applications (1 page(s), with copy of no application(s)).

Other: N/A

Citation of such information shall not be construed as (i) an admission that the information necessarily is, or corresponds to, prior art with respect to the instant invention, (ii) a representation that a search has been made, other than as described herein, or (iii) an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

For each item of information listed that is not in the English language, the undersigned has provided a concise explanation of the relevance through (i) an English language abstract, (ii) an English language equivalent application, or (iii) if cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action that indicates the degree of relevance found by the foreign office.

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 ✓ Certain information was submitted to, or cited by, the Office in Application No(s). N/A, filed N/A, to which the above-identified application claims priority under 35 U.S.C. § 120. In accordance with 37 C.F.R. § 1.98(d), copies of that information are not included.
 ✓ Pursuant to 1287 OG 163 (October 19, 2004), for those cited pending U.S. patent applications filed (or which entered the national stage under 35 U.S.C. § 371) on or after June 30, 2003 or which are otherwise stored in the USPTO's Image File Wrapper system, copies are not included.

FEE AUTHORIZATION

The undersigned believes that this information Disclosure Statement is being filed before the mailing date of (i) a final action under § 1.113, (ii) a notice of allowance under § 1.311 or (iii) an action that otherwise closes prosecution. Accordingly, this Information Disclosure Statement is accompanied by the fee set forth in § 1.17(p) as follows:

\boxtimes	A check in the amount of \$180.00 is enclosed herewith.
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Andrew C. Graham	Date

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Respectfully submitted

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PTO/SB/08A (Substitute for form 1449/PTO)	Attorney Docket No.:	023-0030
	Application No.:	10/729,844
O I FINANCE STATEMENT BY APPLICANT	First Named Inventor	: En-Hsing Chen et al.
100 1 6 2005	Filing Date:	December 5, 2003
NHK 1 200 AII	Group Art Unit:	2818
MADEMA	Examiner Name:	Son Luu Mai
Sheet 1 of 5	Date Submitted:	April 18, 2005

			U.S. PATENT DO	CUMENTS		
Examiner Initials*	Cite No.1	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, W Relevant Passages or Rele Figures Appear	
	AA	4,142,176	02-27-1979	Dozier		
	AB	4,543,594	09-24-1985	Mohsen et al.		
	AC	4,602,354	07-22-1986	Craycraft et al.		
	AD	4,868,616	09-19-1989	Johnson et al.		
	AE	5,197,027	03-23-1993	Challa		
	AF	5,301,144	04-05-1994	Kohno		
	AG	5,412,493	05-02-1995	Kunii et al.		
	AH	5,429,968	07-04-1995	Koyama		
	AI	5,473,563	12-05-1995	Suh et al.		
	AJ	5,568,421	10-22-1996	Aritome		
	AK	5,621,683	04-15-1997	Young		
	AL	5,644,533	07-01-1997	Lancaster et al.		
	AM	5,703,382	12-30-1997	Hack et al.		
	•	1	FOREIGN PATENT	DOCUMENTS		
Examiner Initials*	Cite No.1	Foreign Patent Document Country Code ³ -Number ⁴ - Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentce or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	AN	JA 62-142363	06-25-1987			
	AO	JA 62-155568	07-10-1987			
	AP	JA-2001-358237	12-26-2001			
	AQ	JA-2002-280467	09-27-2002			
Examiner Sig	nature			Date Considered		

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional).

²See Kinds Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04.

³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3)

⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible.

⁶Applicant is to place a check mark here if English language Translation is attached.

PTO/SB/08A (Substitute for form 1449/PTO)	Attorney Docket No.: 023-0030
	Application No.: 10/729,844
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	First Named Inventor: En-Hsing Chen et al.
(Continuation Sheet)	Filing Date: December 5, 2003
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Sheet 2 of 5	Date Submitted: April 18, 2005

Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, W Relevant Passages or Rele Figures Appear	
	AR	5,715,194	02-03-1998	Hu		
	AS	5,751,012	05-12-1998	Wolstenholme et al.		
	AT	5,814,853	09-29-1998	Chen		
	AU	5,835,396	11-10-1998	Zhang		
	AV	5,898,615	04-27-1999	Chida		
	AW	5,923,587	07-13-1999	Choi		
·	AX	5,926,415	07-20-1999	Shin		
	AY	5,940,321	08-17-1999	Takeuchi et al.		
	AZ	5,978,265	11-02-1999	Kirisawa et al.		
	BA	6,034,882	03-07-2000	Johnson et al.		
	ВВ	6,055,180	04-25-2000	Gudesen et al.		
	BC	6,107,658	08-22-2000	Itoh et al.		
· · · · · · · · · · · · · · · · · · ·	BD	6,185,122 B1	02-06-2001	Johnson et al.		
]	FOREIGN PATENT	DOCUMENTS		
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	BI	6,188,611 B1	02-13-2001	Endoh et al.		
	ВЈ	6,291,836	09-18-2001	Kramer et al.		
	BK	6,307,807 B1	10-23-2001	Sakui et al.		
	BL	6,326,269 B1	12-04-2001	Jeng et al.		
	ВМ	6,373,746 B1	04-16-2002	Takeuchi et al.		
	BN	6,434,053	08-13-2002	Fujiwara		
	ВО	6,445,613	09-03-2002	Nagai		
	BP	6,469,933 B2	10-22-2002	Choi et al.		
	BQ	6,473,328	10-29-2002	Mercaldi		
	BR	6,477,077	11-05-2002	Okazawa		
	BS	6,490,194	12-03-2002	Hoenigschmid		
	вт	6,498,747	12-24-2002	Gogl et al.		
	BU	6,512,703 B2	01-28-2003	Sakui et al.		
	•]	FOREIGN PATENT	DOCUMENTS		
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Sheet 4 of 5	Date Submitted:	April 18, 2005

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	BZ	6,515,888	02-04-2003	Johnson et al.		
	CA	6,545,898	04-08-2003	Scheuerlein		
	СВ	6,567,312 B1	05-20-2003	Torii et al.		
	СС	6,597,609 B2	07-22-2003	Chevallier		
	CD	6,611,453	08-26-2003	Ning		
	CE	6,614,688 B2	09-02-2003	Jeong et al.		
	CF	6,618,292 B2	09-09-2003	Sakui		
	CG	6,621,743 B2	09-16-2003	Ogane		
	СН	6,822,903 B2	11-23-2004	Scheuerlein et al.		
	CI	6,849,905 B2	02-01-2005	Ilkbahar et al.		
	CJ	6,856,572 B2	02-15-2005	Scheuerlein et al.		
-	СК	6,859,410 B2	02-22-2005	Scheuerlein et al.		
	CL	US RE. 35,838	07-07-1998	Momodomi et al.		
]	FOREIGN PATENT	DOCUMENTS		
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Sheet 5 of 5	Date Submitted: April 18, 2005	

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	CQ	US-2002/0021587 A1.	02-21-2002	Sakui et al		
	CR	US-2002/0028541 A2	03-07-2002	Lee et al.		
	CS	US-2003/0155582 A1	08-21-2003	Mahajani et al.		
	СТ	US-2004/0124415	07-01-2004	Walker et al.		
	CU	US-2004/0124466	07-01-2004	Walker et al.		
	CV	US-2004/0125629 A1	07-01-2004	Scheuerlein et al.		
	CW	US-2004/045024 A1	07-29-2004	Chen et al.		
	CX	US-6,108,238	08-2000	Nakamura et al.		
-	CY	US-6,049,494	04-2000	Sakui et al.		
	CZ	US-5,991,202	11-1999	Derhacobian et al.		
	DA	US-5,812,457	09-1998	Arase		
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TRADEMAN			Examiner Name:	Son Luu Mai			
Sheet 1 of 2			Date Submitted:	April 18, 2005			
		NON PATENT LITERATURE DOCUM	ENTS				
Examiner Initials*	Cite No.1	Include name of author (in CAPITAL LETTERS), title of artic (book, magazine, journal, serial, symposium, catalog, etc.), da publisher, city and/or country where	ite, page(s), volume-issue				
	AA	DURISETY, CHANDRA SEKHAR ACHARYULU, "Analysis and Characterization of Single-Poly Floating Gate Devices in 0.35um PDSOI Process", A Thesis Presented for the Master of Science Degree, The University of Tennessee, Knoxville, December 2002, pp. i-viii and 1-80.					
	AB	EVANS, ROBERT J., ET AL., "Energy Consumption Modeling and Optimization for SRAM's," IEEE Journal of Solid-State Circuits, Vol. 30, No. 5, May 1995, pp. 571-579.					
	AC	JUNG, TAE-SUNG, ET AL., "A 117-mm ² 3.3-V Only 128-Mb Multilevel NAND Flash Memory for Mass Storage Applications," IEEE Journal of Solid-State Circuits, Vol. 31, No. 11, November 1996, pp. 1575-1583.					
	AD	KAWAGOE, HIROTO, ET AL., "Minimum Size ROM Structure Compatible with Silicon-Gate E/D MOS LSI," IEEE Journal of Solid-State Circuits, Vol. SC-11, No. 3, June 1976, pp. 360-364.					
	AE	KIM, KYU-HYOUN, ET AL., "An 8-Bit-Resolution, 360-μs Write on Differentially Balanced Constant-Tunneling-Current Scheme (DB Circuits, Vol. 33, No. 11, November 1998, pp. 1758-1762.					
	AF	KIM, BYUNGCHEUL, ET AL., "A Scaled SONOS Single-Transisto Structure with Common Source Lines," Journal of the Korean Physic 2002, pp. 945-948.					
	AG	KIM, BYUNGCHEUL, ET AL., "Single Power Supply Operated and Highly Reliable SONOS EEPROMs," Journal of the Korean Physical Society, Vol. 40, No. 4, April 2002, pp. 642-644.					
	АН	KITANO, YOSHITAKA, ET AL., "A 4-Mbit Full-Wafer ROM," IEEE Journal of Solid-State Circuits, Vol. SC-15, No. 4, August 1980, pp. 686-693.					
	AI	LEE, YONG KYU, ET AL., "Multilevel Vertical-Channel SONOS Nonvolatile Memory on SOI," IEEE Electron Device Letters, Vol. 23, No. 11, November 2002, pp. 664-666.					
	AJ	LIN, HORNG-CHIH, ET AL., "Ambipolar Schottky-Barrier TFTs," IEEE Transactions on Electron Devices, Vol. 49, No. 2, February 2002, pp. 264-270.					
	AK	NAJEEB-UD-DIN ET AL., "Analysis of Floating Body Effects in Thin Film Conventional and Single Pocket SOI MOSFETs Using the GIDL Current Technique", IEEE Electron Device Letters, Vol. 23, No. 4, April 2002, pp. 209-211.					
	AL	NISHIHARA, TOSHIYUKI, ET AL., "A Quasi-Matrix Ferroelectric Memory for Future Silicon Storage," IEEE Journal of Solid-State Circuits, Vol. 37, No. 11, November 2002, pp. 1479-1484.					
	AM	PARK, KI-TAE, "Recent Non-Volatile Memory Device & Circuit Technology," Halo LSI Inc, (date unknown), 35 pages.					
	AN	ROIZIN, YAKOV, ET AL., "Plasma-Induced Charging in Two Bit per Cell SONOS Memories," Tower Semiconductor Ltd., Migdal HaEmek 23105, Israel, (date unknown), 4 pages.					
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^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Applicant's unique citation designation number (optional).

Applicant is to place a check mark here if English language Translation is attached.

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(Continuation Sheet)	Filing Date:	December 5, 2003
	Group Art Unit:	2818
	Examiner Name:	Son Luu Mai
Sheet 2 of 2	Date Submitted:	April 18, 2005

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.1	Include name of author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		
	AO	SHIN, JONGSHIN, ET AL., "A New Charge Pump Without Degradation in Threshold Voltage Due to Body Effect," IEEE Journal of Solid-State Circuits, Vol. 35, No. 8, August 2000, pp. 1227-1230.		
	AP	STURM, J. C., ET AL., "Leakage Current Modeling of Series-Connected Thin Film Transistors," IEEE Transactions on Electron Devices, Vol. 42, No. 8, August 1995, pp. 1561-1563.		
	AQ	SUGIBAYASHI, TADAHIKO, ET AL., "A 30-ns 256-Mb DRAM with a Multidivided Array Structure," IEEE Journal of Solid-State Circuits, Vol. 28, No. 11, November 1993, pp. 1092-1098.		
	AR	SUH, KANG-DEOG, ET AL., "A 3.3 V 32 Mb NAND Flash Memory with Incremental Step Pulse Programming Scheme," IEEE Journal of Solid-State Circuits, Vol. 30, No. 11, November 1995, pp. 1149-1156.		
	AS	TAKEUCHI, KEN, ET AL., "A Negative V _{th} Cell Architecture for Highly Scalable, Excellently Noise-Immune, and Highly Reliable NAND Flash Memories," IEEE Journal of Solid-State Circuits, Vol. 34, No. 5, May 1999, pp. 675-684.		
	AT	THEAN, AARON, ET AL., "Flash memory: towards single-electronics," IEEE Potentials, October/November 2002, pp. 35-41.		
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Attorney Docket No.: 023-0030 Application No.: 10/729,844 Applicant(s): En-Hsing Chen et al. Filing Date: December 5, 2003 Group Art Unit: 2818

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LIST OF PENDING U. S. PATENT APPLICATIONS

The following pending U.S. patent applications are listed for consideration by the Examiner.

- U.S. Patent Application No. 10,729,865, filed December 5, 2003, entitled "NAND Memory Array Incorporating Multiple Series Selection Devices and Method for Operation of Same," naming inventors En-Hsing Chen, Andrew J. Walker, Roy E. Scheuerlein, Sucheta Nallamothu, Alper Ilkbahar, Luca G. Fasoli and James M. Cleeves.
- 2) U.S. Patent Application No. 10/729,843, filed December 5, 2003, entitled "Memory Array Incorporating Memory Cells Arranged in NAND Strings," naming inventors Luca G. Fasoli, Roy E. Scheuerlein, En-Hsing Chen, Sucheta Nallamothu, Maitreyee Mahajani, and Andrew J. Walker.

Applicant(s) are providing a separate list of pending applications, pursuant to MPEP § 609III(D), to avoid publication of the application numbers on any patent that issues from the above-identified application. Applicant(s) request that the Examiner indicate consideration of the pending applications listed above in accordance with MPEP 609III(C)(2) and return a copy of this page with the next communication.